

## ARTICLE WITHDRAWAL DEVICE

### BACKGROUND OF THE INVENTION

The present invention relates to packaging and, in particular, secondary cartons for containing bottled or, especially, cans of beverages.

Popular versions of such secondary cartons are usually composed of a top wall, bottom wall, two side walls and two end walls and contain up to 24 primary containers. However, very popular are cartons containing a smaller number say 6 or 12 or even up to 18 primary containers, these smaller packages being readily kept in a fridge for cooling of their contents. As will be appreciated, removal of the contents, especially on a one-by-one basis, usually invokes removing the entire carton or providing access via a wall of the carton. Carton producers have attempted to provide convenient access to the primary containers by building a severable access panel into a carton wall. However, re-closing the carton is usually a problem, especially following removing primary containers on several occasions when tearing of the board usually occurs. Attempts to solve this problem has resulted in the designing of complex and expensive, cartons having discharge chutes etc. However, such cartons, especially for 6 and 12 cans have to be, for commercial reasons, simple and inexpensive and usually are simple "sleeves". If it is desired to locate the carton in the fridge during removal of the cans, there is a tendency for more than one can to unavoidably exit the carton. The above noted chutes can remedy that problem but only at high, and usually unacceptable, cost.

A combination attempting to solve these problems is disclosed in U.S. 5,284,292 but that solution leaves something to be desired, **FIG. 5** of that patent indicating how the slideable member projects out of the carton. It is an object of the present invention to provide a carton withdrawing device which greatly facilitates the removal of cans from their associated secondary

container.

It is a further object of the present invention to provide such a device which assists in keeping the carton contents cold even when the carton has been removed from a fridge or another cooling device.

### **SUMMARY OF THE INVENTION**

The present invention provides a simple and inexpensive device for withdrawing cylindrical articles especially beverage-containing cans from a secondary container, the device comprising an elongated base member and upstanding from an end thereof at an angle of at most 90°, a carton closure member. The base member is preferably dimensioned to overlies most of the interior surface of the wall of an associated carton upon which wall the cans will lie on their side in preparation for removal. In fact, when inserted in the carton with its complement of cans, the bottom layer of cans will actually lie on the device base member. The closure member is dimensioned to fit and overlay a container access portal or opening of a container enclosing one or more rows of the cylindrical article, especially a can containing a beverage.

In one aspect therefore, the present invention provides a device for withdrawing a cylindrical article from a secondary container which container encloses at least one row of said articles lying on their side along a first wall of said container which container also has a second wall having a potential opening for discharging said articles; said device comprising a base member having a width not more than the length of each article and a length about that of said second wall and having at one end, an upstanding cover member dimensioned to close said opening, and at another end a primary container-restraining member adapted to pass under said row of articles upon said base member being inserted through said opening and under said row of articles, said device being outwardly pullable to withdraw one or more of said articles from said secondary

container.

In another aspect the invention provides a device for withdrawing primary beverage containers from a secondary container which encloses at least one row of said primary containers lying on their side along a first wall of said container which also has a second wall having a potential opening for discharging said primary containers, said device comprising a base member having a width not more than the length of each primary container and a length about that of said second wall and having at one end an upstanding cover member dimensioned to close said opening, and at another end a primary container ridge-restraining member, said base member being adapted to pass and lie under said row of primary containers upon its being inserted through said opening and under said row of primary containers, said device being outwardly pullable to withdraw one or more of said primary containers from within said secondary container.

In a further aspect the present invention provides in combination, a primary beverage container containing at least one layer of adjacent primary beverage containers lying on their sides on a first wall and a second wall having a potential opening for discharging said primary containers, said device comprising a base member having a width not more than the length of each primary container and a length about that of said second wall and having at one end an upstanding cover member, dimensioned to close said opening, and at another end a primary container ridge member restraining adapted to pass under said row of primary containers upon said base member being inserted through said opening, when created, and lie under said row of primary containers, said device being outwardly pullable to withdraw one or more of said primary containers from said secondary container.

The present invention will be further described with reference to, but not limited by, the embodiments shown in the accompanying drawings in which:

**FIG. 1** is a perspective side view from above of a device of the present invention;

**FIG. 2** is a similar view of another device of the present invention;

**FIG. 3** is a top plan view of a further device of the present invention;

**FIG. 4** is a side elevation - partially cut away, of a 3 x 4 twelve pack with the device of **FIG. 2** in position.

**FIG. 5** is an end elevation of the carton shown in **FIG. 4**.

**FIG. 6** is a similar view of the carton as shown in **FIG. 4** but with the device partially extracted and one beverage can withdrawn from the carton.

**FIG. 7** is a cross-section through a trapezoid-shaped promotional carton containing nine cans and including a device of the present invention in position in said carton with the carton access opening formed.

Turning to the drawings, **FIG. 1** shows an embodiment of the article withdrawing device of the present invention, the device generally designated 10 comprises a base 12 formed of a strip 14 of a high density polyethylene having upstanding opening cover 16 which is angled slightly toward strip 14, the angle between base 12 and cover 16 being slightly less than 99° and a can restraining ridge member 18 located at the end of the base remote from cover 16. The device is molded in one piece.

**FIG. 2** shows a modified form of the device of **FIG. 1** but wherein cover member 16 is provided with a knob 20 which constitutes a handle to allow for convenient handling especially insertion and withdrawal of the device 10. In addition to ridge 18, this embodiment is also provided with

a second can restraining ridge 22 formed of two parts 24. Ridge 22 could be formed in one piece in a similar manner to ridge 18.

Turning to **FIG. 3**, this illustrates yet a further embodiment of the device 10 as shown in FIG. 1 but wherein cover 16 is extended slightly in its lateral dimension and its edges 17 are each provided with a lip 26 which is arranged to lie outside and adjacent to the associated side walls 27 of a secondary carton.

In **FIG. 4**, is shown the device of **FIG. 2** in an operative position in a carton 30. The carton has a top wall 32, a bottom wall 34 and end walls 36 and 38. The latter is provided with can access opening 40 which is shown in its open state with door panel 42 lying open i.e. edge 44 severed from end wall 38 along tear line 46 and door panel 42 rotated to expose opening 40. Inserted through opening 40 is withdrawal device 10, base 12 of which been fully inserted under the bottom row of cans 50 so that end ridge 18 is positioned behind the last end can 50 and forward ridge 22 is positioned between the first and second cans 50 i.e. slightly more than one can 50 diameter from cover 16. In this fully inserted positional, cover 16 completely seals opening 40. It may be noted that only six cans 50 of the original twelve remain.

**FIG. 5** shows the area 19 of overlap of device cover 16 over its adjacent end wall 38, this assisting in sealing the carton.

Turning to **FIG. 6**, this shows the carton 30 of **FIG. 4** but with the inventive device partially extracted from the carton 30 with the first can 50 withdrawn and outside of wall 38 and available for picking up. Of particular note is that upon, device 10 being pulled out, a space is created behind restraining ridge 18 which has pulled the original end can 50 forward toward discharge opening 40. That space is automatically filled by new end can 50 which has descended from the second row of cans supported by the first layer of cans 50.

Finally, turning to **FIG. 7**, this shows an alternative type of secondary container which has a trapezoid shape and contains a full complement of nine cans 50. As with previously described embodiments, one end wall 38 is provided with a can access opening 40 shown totally covered by cover 16 of device 10. End cover 16 is biased by having its upper edge inclined inwards against the outer surface of end wall 38. The angle between base 14 and cover 16 is about 60°. Cover 16 also has a handle constituted by a rope member 54 located through a hole 56 in cover 16 and retained there *via* knots 57. This also provides a pleasing presentation to the consumer. It should also be noted that the base 14 of device 10 does not extend the full length of bottom wall 34, the latter, because of the trapezoid shape of carton 50, extending past the first and fourth cans 50 a little more than in a corresponding rectangular carton. It is only necessary that the can restraining ridge 18 is positioned behind the fourth or end can 50 when cover 16 is in position sealing opening 40 since that is sufficient to ensure cans 50 in the bottom row are pullable to and through opening 40. Finally, the end wall section 42 which initially sealed the carton on its contents has, in this case, been completely removed with only edge 58 remaining.

The present invention operates as follows:

Referring to **FIG. 4**, carton 30 is opened by removing a tear strip 46 which frees the edge 44 of door panel 42 from the remainder of end wall 38. Panel 42 rotates about the join 45 of end wall 38 and bottom wall 34. This action may be taken whilst carton 30 is supported on its other end wall 30. This not only ensures that no cans 50 exit through opening 40 when not desired but assists the sliding of device base 12 between the inside surface of bottom wall 34 and the first row of cans 50. Can-retaining ridge 18 readily passes past all the cans especially since the cans 50 are not, at time, supported by bottom wall 34. Upon the device 10 being fully inserted into

the carton 30, cover 16 completely fills opening 40 with its upper edge 47 overlying the lower edge 49 of end wall 38. In this embodiment, the base 12 of the device is provided with additional can restraining ridge means 22 which is then located between the first and second of cans 50. Door panel 42 may be retained or, as shown in the embodiment shown in **FIG. 7**, may be simply ripped off at its join 58 with the bottom wall 34. The carton may then be set down on its base 34 in a cooler or refrigerator if desired. To withdraw or extract a can, handle 20 is grasped and pulled to the position shown in **FIG. 6**: the first can 50 is then simply picked up with the hand. In this embodiment, second can retaining ridge 22 prevents a further can 50 from filling the space vacated by the removal of the first can 50 readily allowing sequential can removal. In the case of the device of **FIG. 1** and **FIG. 7**, in the absence of a second ridge 22, a second can 50 would automatically move into the vacated spot under urging from the influence of gravity. Returning to **FIG. 6**, the partial withdrawal or extraction of the device 10 from the carton 30 results in a can 50 falling into the space behind ridge 18. Re-insertion of the device 10 into the carton results in the base 12 being returned to its original position to underlie the now full row of cans 50 as shown in **FIG. 4**, ridge 18 readily passing under the last can 50 adjacent end wall 36. The procedure is repeated until there is only one row of cans left, all carried by the device 10 and these may be extracted simply by withdrawing the device 10, if necessary, its full length from within the carton 30.

The combination of carton 50 and device 10 shown in **FIG. 7** operates in substantially the same manner. **FIG. 7** shows a promotional carton which may well be filled by hand because of its unusual shape. The carton is initially partially erected from a blank but leaving one trapezoid shaped side wall open. The device 10 can be inserted but with its cover 16 located inside the end wall 38 of the carton 50 as shown *in phantom*. Note that there is a space between ridge 18 and

end wall 38 for ease of ensuring sufficient room for the cover 16 inside the carton 51. In addition to its can dispensing function, the presence of this embodiment of the device within the carton during its delivery to the consumer generally increases the strength and structural integrity of the carton-can package combination, another feature of the present invention. The open trapezoid side wall is then rotated and, for example, mechanically secured in known manner to seal the carton. Prior to creating the can access opening 40, the side wall (not shown) is unlocked, the device 10 is extracted; the same side wall is re-secured and opening 40 created by severing door panel 42. The device 10 can then be re-inserted in carton 51 to be operated as described above.

It should be noted that the cover 16 can be arranged to closely seal the can access opening 40. Consequently, the cans in such a carton which has been cooled in a fridge or the like, will stay cool for a prolonged period if the carton is removed from the fridge. This function is assisted by the use of the wrap-around lips shown in **FIG. 3**.

As will be appreciated, the device 10 can be reused with any carton which can provide an access opening of dimensions to allow insertion of a device 10 and cover 16 to seal opening 40 and removal of cans is as described.

The present invention also includes the combination of a carton and the withdrawal device as described above. Although the invention is specifically described above with reference to cans of a beverage, it can obviously be used in association with bottles and the like and more broadly, any cylindrical containers or articles which are packaged in a similar manner as cans as described above.